

Appendix B

Site-Specific Institutional Control Requirements

Table B-1. Sites with remedies requiring institutional controls at Waste Area Group (WAG) 2.a

Site Code	Site Name	Record of Decision (ROD) Selected Remedy	Basis for Institutional Controls ^b	Institutional Controls ^c
TRA-03	TRA Warm Waste Pond (sediments)	Containment with an engineered soil cover and institutional controls	Containment barrier is in place. Current occupational risk is 2E-02. 100-year future residential risk is >1E-04.	Restrict site to occupational access for more than 30 years and restrict to industrial land use only until residential risk is <1E-04 based on the results of a 5-year review.
TRA-06	TRA Chemical Waste Pond (TRA 701)	Containment with a native soil cover and institutional controls	Native soil cover in place. Hazard quotient greater than 1 for mercury via homegrown produce ingestion and soil ingestion at a depth of 14 feet.	Industrial land use is unrestricted. Restrict residential land use to depths less than 14 feet.
TRA-08	TRA Cold Waste Disposal Pond (TRA- 702)	Excavation and disposal	Soil excavated and disposed of to 1E-04 future residential risk cleanup levels. Institutional controls needed to preserve 100-year industrial land use assumption.	Restrict site to industrial land use for less than 100 years until residential risk is <1E-04 based on the results of a 5-year review.
TRA-13	TRA Sewage Leach Ponds (2) by TRA-732	Containment with a native soil cover and institutional controls	Containment barrier is in place. Current occupational risk is 1E-03 for Cs-137 and Ag-108. 100-year residential risk is 5E-04 at a depth of 14 feet. The hazard quotient is greater than 1 for mercury and zinc via homegrown produce ingestion.	Restrict site to occupational access for more than 30 years and restrict to industrial land use only until residential risk is <1E-04 based on the results of a 5-year review.

Table B-1. (continued).

Site Code	Site Name	Record of Decision (ROD) Selected Remedy	Basis for Institutional Controls ^b	Institutional Controls ^c
TRA-15	TRA Hot Waste Tanks 2, 3, 4 at TRA- 613 (TRA 713- B, 713-C, and 713-D)	Limited action	Tanks still in use. Current occupational risk 3E-04; 100-year future residential risk is 1E-04. Additional contaminated soil is greater than 13 feet deep to basalt at 37 feet. Risk assessment not done at this depth. Additional institutional controls needed to preserve assumption that deeper soil would never be accessed.	Restrict occupational and residential access for less than 100 years until risk is <1E-04 based on a 5-year review. After the above restriction is removed, restrict land use at depths greater than 10 feet until otherwise evaluated.
TRA-19	TRA Rad Tanks 1 and 4 at TRA-630, replaced by Tanks 1, 2, 3, and 4 (TRA 730-1, 730-2, 730-3, 730-4)	Limited action with implementation of a contingent excavation and disposal option	New tanks still in use. Current occupational risk is 2E-01 for Cs-137. 100-year residential risk is 8E-02.	Restrict occupational access and prohibit residential development until soil is removed or status is changed based on results of a 5-year review.
None	Sewage Leach Pond Soil Contamination Area	Limited action	2E-04 current occupational risk; 30-year occupation risk and 100-year residential risk is <1E-04.	Restrict occupational and residential access until risk is <1E-04 based on results of a 5-year review.
None	Brass Cap Area	Limited action with implementation of a contingent excavation and disposal option	3E-01 current occupational risk and 8E-02 30-year future occupational risk. 8E-02 100-year future residential risk.	Restrict occupational access and prohibit residential development until contamination is removed or status is changed based on a 5-year review.

a. Information source is DOE-ID 1997b.

With the exception of TRA-08, all risks are preremediation risks developed in the baseline risk assessment (DOE-ID 1997b)

c. Timeframes are approximate. Duration of controls will be based on acceptable levels or risk.

Table B-2. No-action sites requiring institutional controls at WAG 2.

Site Code	Site Name	ROD Selected Remedy	Basis for Institutional Controls ^a	Institutional Controls
None	TRA PCB spill at TRA-619	No action	22 ppm polychlorinated biphenyl (PCBs) in soil under pad, which is below the 25 ppm for restricted industrial areas and greater than the 10 ppm for general nonrestricted use (40 Code of Federal Regulations (CFR) 761.125(c)(4)). Institutional controls needed to preserve industrial land use assumption.	Permanently restrict this site to industrial land use only, unless otherwise indicated in a 5-year review.
None	TRA PCB spill at TRA-626	No action	24 ppm PCBs in soil >4 feet deep, which is below the 25 ppm for restricted industrial areas and greater than the 10 ppm for general nonrestricted use (40 CFR 761.125(c)(4)). Institutional controls needed to preserve industrial land use assumption.	Permanently restrict this site to industrial land use only, unless otherwise indicated in a 5-year review.
None	TRA PCB spill at TRA-653	No action	PCBs ≤25ppm in soil, which is below the 25 ppm for restricted industrial areas and greater than the 10 ppm for general nonrestricted use (40 CFR 761.125(c)(4)). Institutional controls needed to preserve industrial land use assumption.	Permanently restrict this site to industrial land use only, unless otherwise indicated in a 5-year review.

Table B-2. (continued).

Site Code	Site Name	ROD Selected Remedy	Basis for Institutional Controls ^a	Institutional Controls
TRA-04	TRA Warm Waste Retention Basin, surficial sediments (TRA-712)	No action	5E-04 current residential risk for 10 feet and less. Risk evaluation not done for contamination at 40 feet deep. Institutional controls needed to preserve 100-year industrial land use assumption and assumption that deeper soil would never be accessed.	Restrict site to industrial use only for less than 10 feet deep. Restrict land use for deeper contamination until evaluated otherwise.
TRA-34	TRA North Storage Area	No action	3.5E-05 100-year residential risk. 1.2E-04 current residential risk for silver-108m, cesium-137, and europium-152. Institutional controls needed to preserve 100-year industrial land use assumption.	Restrict land use to industrial until residential risk is less than E-04 based on a 5-year review.
None	Hot Tree Site	No action	2E-04 current residential risk from cesium-137. 2E-05 risk after 100 years.	Restrict site to industrial land use only for approximately 30 years until residential risk is less than E-04 based on the results of a 5-year review.
None	Perched and Snake River Aquifer groundwater	No action, with monitoring	Chromium concentrations are greater than maximum contaminant levels (MCLs) and are predicted to decrease below MCLs within 20 years. H-3 concentrations are below MCLs. Institutional controls needed to preserve the assumption that drinking-water wells would not be drilled.	Restrict drilling of wells for drinking water use until contaminants are below MCLs based on the results of a 5-year review.

Table B-3. Institutional control requirements for WAG 2.

Timeframe	Land Restriction ^a	Exposure Concern	Objective	Controls	Regulatory Basis or Authority
					contaminated soil. An engineered barrier was E-04 in approximately 1,000 years.
Current DOE operations	Landfill—no unauthorized	Radionuclides— exposure to	Maintain integrity of	Visible access restrictions (warning signs)	Federal Facility Agreement and Consent Order (DOE-ID 1991)
	intrusion into capped area	subsurface soil and buried waste	containment barrier	2. Control of activities	Worker protection (10 CFR 835)
	capped area	and buried waste	Darrie	(drilling or excavating) 3. Publication of surveyed	Radiation protection of the public and as low as reasonably achievable principles (DOE Order 5400.)
				boundaries and descriptions of controls in the INEEL Land Use Plan	National Oil and Hazardous Substances Pollution Control Plan (40 CFR Part 300)
				(DOE-ID 1996)	CERCLA [42 USC 9620 § 120(h)]
DOE control Landfill—no post- unauthorized		Maintain integrity of	1. Visible access restrictions (warning signs)	Federal Facility Agreement and Consent Order (DOE-ID 1991)	
operations	intrusion into		containment	barrier (drilling or excavating)	CERCLA [42 USC 9620 § 120(h)(5)] ^b
(i.e., after operations	capped area		oattici		Hall Amendment of the National Defense
cease)				3. Property lease requirements including	Authorization Act ^e (Public Law 103–160)
					control of land use consistent with the WAG 2 ROD and this ESD
				4. Notice to affected stakeholders (e.g., Bureau of Land Management, Sho-Ban Tribal Council, local county governments, IDHW, and the EPA) for any change in land-use designation, restriction, or land users	

Table B-3. (continued).

Timeframe	Land Restriction ²	Exposure Concern	Objective	Controls	Regulatory Basis or Authority
Post-DOE control	Landfill—no unauthorized intrusion into capped area	Radionuclides— exposure to subsurface soil and buried waste	Maintain integrity of containment barrier	1. Property transfer requirements including issuance of a finding of suitability to transfer and control of land use consistent with the WAG 2 ROD and this ESD 2. Notice to affected stakeholders (e.g., Bureau of Land Management, Sho-Ban Tribal Council, local county governments, IDHW, and the EPA) for any change in land-use designation, restriction, or land users	Federal Facility Agreement and Consent Order (DOE-ID 1991) CERCLA [42 USC 9620 § 120(h)(3)] ^d CERCLA [42 USC 9620 § 120(h)(3)(C)(ii)] ^e CERCLA [42 USC 9620 § 120(h)(3)(A)(iii)] ^f CERCLA [42 USC 9620 § 120(h)(1)-(3)] ^g CERCLA [42 USC 9620 § 120(h)(4)] ^h Property relinquishment notification (43 CFR 2372.1) ¹ Criteria for Bureau of Land Management acceptance of property 43 CFR 2374.2 ^j Excess property reporting requirements (41 CFR 101-47.202-1,-2,-7) ^k Property release restrictions (DOE Order 5400.5)

Table B-3. (continued).

					·
Timeframe	Land Restriction ^a	Exposure Concern	Objective	Controls	Regulatory Basis or Authority
				ndfill containing radiologically to diminish to 1E-04 in appro	contaminated soil. A native soil cover was placed
Current DOE operations	Landfill—no unauthorized	Radionuclides— exposure to	Maintain integrity of	1. Visible access restrictions (warning signs)	Federal Facility Agreement and Consent Order (DOE-ID 1991)
	intrusion into capped area	subsurface soil and buried waste	containment barrier	2. Control of activities	Worker protection (10 CFR 835)
	саррец агеа	and buried waste	Daniel	(drilling or excavating) 3. Publication of surveyed	Radiation protection of the public and as low as reasonably achievable principles (DOE Order 5400.5)
				boundaries and descriptions of controls in the INEEL Land Use Plan.	National Oil and Hazardous Substances Pollution Control Plan (40 CFR Part 300)
				Laird Ose Flaii.	CERCLA [42 USC 9620 § 120(h)]
DOE control post	Landfill—no unauthorized	zed exposure to integ into subsurface soil cont		1. Visible access restrictions (warning signs)	Federal Facility Agreement and Consent Order (DOE-ID 1991)
operations	intrusion into		containment	2. Control of activities (drilling or excavating) 3. Property lease	CERCLA [42 USC 9620 § 120(h)(5)] ^b
(i.e., after operations cease)	capped area	and buried waste	oarrier		Hall Amendment of the National Defense Authorization Act (Public Law 103–160) ^c
coase,			require control consist	requirements including control of land use consistent with the WAG 2 ROD and this ESD	Property release restrictions (DOE Order 5400.5)
				4. Notice to affected stakeholders (e.g., Bureau of Land Management, Sho-Ban Tribal Council, local county governments, IDHW, and the EPA) for any change in land-use designation, restriction, or land users	

Table B-3. (continued).

Timeframe	Land Restriction ^a	Exposure Concern	Objective	Controls	Regulatory Basis or Authority
Post-DOE control	Landfill—no unauthorized intrusion into capped area	Radionuclides— exposure to subsurface soil and buried waste	Maintain integrity of containment barrier	1. Property transfer requirements including issuance of a finding of suitability to transfer and control of land use consistent with the WAG 2 ROD and this ESD 2. Notice to affected stakeholders (e.g., Bureau of Land Management, Sho-Ban Tribal Council, local county governments, IDHW, and the EPA) for any change in land-use designation, restriction, or land users	Federal Facility Agreement and Consent Order (DOE-ID 1991) CERCLA [42 USC 9620 § 120(h)(3)] ^d CERCLA [42 USC 9620 § 120(h)(3)(C)(ii)] ^e CERCLA [42 USC 9620 § 120(h)(3)(A)(iii)] ^f CERCLA [42 USC 9620 § 120(h)(1)-(3)] ^g CERCLA [42 USC 9620 § 120(h)(4)] ^h Property relinquishment notification (43 CFR 2372.1) ⁱ Criterion for BLM acceptance of property (43 CFR 2374.2) ^j Excess property reporting requirements (41 CFR 101-47.202-1,-2,-7) ^k
					Property release restrictions (DOE Order 5400.5)

Table B-3. (continued).

Timeframe	Land Restriction ^a	Exposure Concern	Objective	Controls	Regulatory Basis or Authority
					ates are greater than 1E-04. Controls will be mate is less than 1E-04 in approximately 100 years
	Radionuclides— external		1. Visible access restrictions (warning signs)	Federal Facility Agreement and Consent Order (DOE-ID 1991)	
		radiation	contaminated	2. Control of activities	Worker protection (10 CFR 835)
	soil	5011	(drilling or excavating)	Radiation protection of the public and as low as reasonably achievable principles (DOE Order 5400.5)	
					National Oil and Hazardous Substances Pollution Control Plan (40 CFR Part 300)
					CERCLA [42 USC 9620 § 120(h)]

Table B-3. (continued).

Timeframe	Land Restriction ^a	Exposure Concern	Objective	Controls	Regulatory Basis or Authority
contaminated	soil. Total risk	and TRA-04 Warr for the residential s of TRA-15 and T	scenario is proje	ion Basin, Surficial Sedime cted to diminish to 1E-04 in	ents. These sites have low-level radiologically approximately 100 years for top 10 ft of TRA-15 and the state of the state
Current DOE operations	Industrial	Radionuclides— external	Limit exposure to	1. Visible access restrictions (warning signs)	Federal Facility Agreement and Consent Order (DOE-ID 1991)
		radiation	contaminated	2. Control of activities	Worker protection (10 CFR 835)
		•	soil.	(drilling or excavating)	Radiation protection of the public and as low as reasonably achievable principles (DOE Order 5400.
					National Oil and Hazardous Substances Pollution Control Plan (40 CFR Part 300)
					CERCLA [42 USC 9620 § 120(h)]
DOE control	Industrial	•	Limit exposure	1. Visible access restrictions (warning signs)	Federal Facility Agreement and Consent Order (DOE-ID 1991)
operations		radiation	contaminated	2. Control of activities	CERCLA [42 USC 9620 § 120(h)(5)] ^b
(i.e., after operations			soil.	(drilling or excavating)	Hall Amendment of the National Defense
cease)				3. Property lease	Authorization Act (Public Law 103-160) ^c
cease)			requirements including control of land use consistent with the WAG 2 ROD and this ESD	Property release restrictions (DOE Order 5400.5)	

Table B-3. (continued).

Timeframe	Land Restriction ^a	Exposure Concern	Objective	Controls	Regulatory Basis or Authority
Post-DOE control	Industrial	Radionuclides— external	Limit exposure to	Property transfer requirements including	Federal Facility Agreement and Consent Order (DOE-ID 1991)
	radiation contaminated issuance of a finding of soil suitability to transfer and control of land use	radiation		_	CERCLA [42 USC 9620 § 120(h)(3)d]
		CERCLA [42 USC 9620 § 120(h)(3)(C)(ii)] ^e			
				consistent with the WAG 2	CERCLA [42 USC 9620 § 120(h) (3)(A)(iii)] ^f
				ROD and this ESD.	CERCLA [42 USC 9620 § 120(h)(1)-(3)] ^g
					CERCLA [42 USC 9620 § 120(h)(4)] ^h
					Property relinquishment notification (43 CFR 2372.1) ^I
				Criterion for BLM acceptance of property (43 CFR 2374.2) ^j	
					Excess property reporting requirements (41 CFR 101-47.202-1,-2,-7) ^k
	-				Property release restrictions (DOE Order 5400.5)

Table B-3. (continued).

Timeframe	Land Restriction ^a	Exposure Concern	Objective	Controls	Regulatory Basis or Authority
		and Brass Cap A is removed or state		have low-level radiologicall	ly contaminated soil. Controls will be maintained to
Current DOE operations	Industrial	Radionuclides— external	Limit exposure to	1. Visible access restrictions (warning signs)	Federal Facility Agreement and Consent Order (DOE-ID 1991)
		radiation	contaminated soil	2. Control of activities	Worker protection (10 CFR 835)
	SO.	son	(drilling or excavating)	Radiation protection of the public and as low as reasonably achievable principles (DOE Order 5400.5	
					National Oil and Hazardous Substances Pollution Control Plan (40 CFR Part 300)
					CERCLA [42 USC 9620 § 120(h)]
DOE control post	Industrial	Radionuclides— external	Limit exposure to	1. Visible access restrictions (warning signs)	Federal Facility Agreement and Consent Order (DOE-ID 1991)
operations		radiation	contaminated soil	2. Control of activities	CERCLA [42 USC 9620 § 120(h)(5)] ^b
(i.e., after operations			SOH	(drilling or excavating)	Hall Amendment of the National Defense
cease)				3. Property lease	Authorization Act (Public Law 103-160) ^c
Country			requirements including control of land use consistent with the WAG 2 ROD and this ESD	Property release restrictions (DOE Order 5400.5)	

Table B-3. (continued).

Timeframe	Land Restriction ^a	Exposure Concern	Objective	Controls	Regulatory Basis or Authority
Post-DOE Incontrol	Industrial	external to	contaminated soil	Property transfer requirements including issuance of a finding of suitability to transfer and control of land use consistent with the WAG 2 ROD and this ESD.	Federal Facility Agreement and Consent Order (DOE-ID 1991)
					CERCLA [42 USC 9620 § 120(h)(3) ^d]
					CERCLA [42 USC 9620 § 120(h)(3)(C)(ii)] ^e
					CERCLA [42 USC 9620 § 120(h) (3)(A)(iii)] ^f
					CERCLA [42 USC 9620 § 120(h)(1)-(3)] ⁸
					CERCLA [42 USC 9620 § 120(h)(4)]h
					Property relinquishment notification (43 CFR 2372.1) ^t
					Criterion for BLM acceptance of property (43 CFR 2374.2) ^j
					Excess property reporting requirements (41 CFR 101-47.202-1,-2,-7) ^k
					Property release restrictions (DOE Order 5400.5)

Table B-3. (continued).

Timeframe	Land Restriction ^a	Exposure Concern	Objective	Controls	Regulatory Basis or Authority
Groundwater.	. Contaminant and use of grou	s in groundwater ındwater until cor	exceed maximun	n contaminant levels (MCLs). low MCLs in approximately 3	Controls will be maintained to prevent 0 years.
Current DOE operations	Groundwater use	Tritium, Chromium	Prevent consumption of groundwater that is greater than MCLs	 Control of activities Publish estimated conservative boundaries in INEEL Land Use Plan 	Federal Facility Agreement and Consent Order (DOE-ID 1991) Worker protection (10 CFR 835) National Oil and Hazardous Substances Pollution Control Plan (40 CFR Part 300)
DOE control post- operations (i.e., after operations cease)	Groundwater use	Tritium, Chromium	Prevent consumption of groundwater that is greater than MCLs	 Control of activities Property lease requirements including control of land use consistent with the WAG 2 ROD and this ESD 	CERCLA [42 USC 9620 § 120(h)] Federal Facility Agreement and Consent Order (DOE-ID 1991) CERCLA [42 USC 9620 § 120(h)(5)] ^b Hall Amendment of the National Defense Authorization Act (Public Law 103–160) ^c Property release restrictions (DOE Order 5400.5)
TRA-06 Chen greater than fo	nical Waste Po or the residenti	ond. The site ha	s mercury 14 feet feet below grade	below grade. A native soil coand is not expected to dimini	over was placed over the site. The hazard index is sh.
DOE control post- operations (i.e., after operations cease)	Limited residential	Mercury – residential exposure	Limit residential land use	 Visible access restrictions (warning signs) Property lease requirements including control of land use consistent with the WAG 2 ROD and this ESD 	FFA/CO (DOE-ID 1991) CERCLA [42 USC 9620 § 120(h)(5)] ^b Hall Amendment of the National Defense Authorization Act (Public Law 103–160) ^c Property release restrictions (DOE Order 5400.5)

Table R-3 (continued)

Timeframe	Land Restriction ^a	Exposure Concern	Objective	Controls	Regulatory Basis or Authority
Post-DOE control	Limited Mercury – residential residential exposure	residential	Limit residential land use	Property transfer requirements including issuance of a finding of suitability to transfer and control of land use consistent with the WAG 2 ROD and this ESD.	FFA/CO (DOE-ID 1991)
					CERCLA [42 USC 9620 § 120(h)(3) ^{d]}
					CERCLA [42 USC 9620 § 120(h)(3)(C)(ii)] ^c
					CERCLA [42 USC 9620 § 120(h) (3)(A)(iii)] ^f
					CERCLA [42 USC 9620 § 120(h)(1)-(3)]8
					CERCLA [42 USC 9620 § 120(h)(4)] ^h
					Property relinquishment notification (43 CFR 2372.1)
					Criterion for BLM acceptance of property (43 CFR 2374.2) ^j
					Excess property reporting requirements (41 CFR 101-47.202-1,-2,-7) ^k
					Property release restrictions (DOE Order 5400.5)
greater than	1E-04. Institution		e maintained for	approximately 30 years for T	sk estimates for current residential scenario are RA-34 and Hot Tree Site, and approximately 100
DOE control post-		Radionuclides— minimal concern	Control land use as industrial until residential risk is less than 1E-04 in 30 years or sooner	Property lease requirements including control of land use consistent with the WAG 2 ROD and this ESD	Federal Facility Agreement and Consent Order (DOE-ID 1991)
operations					CERCLA [42 USC 9620 § 120(h)(5)] ^b
(i.e., after operations cease)					Hall Amendment of the National Defense Authorization Act (Public Law 103–160) ^c
					Property release restrictions (DOE Order 5400.5)

if released in a 5-year review.

Table B-3. (continued).

Timeframe Spills at TRA	Land Restriction ^a A-619, TRA-626	Exposure Concern , and TRA-653.	Objective Buried contamina	Controls ated soil remains at these thre	Regulatory Basis or Authority e sites.
DOE control Indus post- operations (i.e., after operation cease)	Industrial	Polychlorinated biphenyls	Control land use as industrial	Property lease requirements including control of land use consistent with the WAG 2 ROD and this ESD	Federal Facility Agreement and Consent Order (DOE-ID 1991)
		(PCBs)			Hall Amendment of the National Defense Authorization Act (Public Law 103–160) ^c
					Property release restrictions (DOE Order 5400.5)
					CERCLA [42 USC 9620 § 120(h)]
Post-DOE control	Industrial	PCBs	Ensure land use is appropriate	Property transfer requirements including issuance of a finding of suitability to transfer and control of land use consistent with the WAG 2 ROD and this ESD.	Federal Facility Agreement and Consent Order (DOE-ID 1991)
					CERCLA [42 USC 9620 § 120(h)(5)] ^b
					Hall Amendment of the National Defense Authorization Act (Public Law 103–160) ^c
					Property release restrictions (DOE Order 5400.5)

a. Institutional controls apply only to sites where hazardous substances, pollutants, or contaminants preclude unlimited land use. Surveillance will be conducted every 5 years to ensure that controls are in place.

- c. Consult with EPA and request the agency's concurrence for leases of sites that are on the NPL.
- d. A statement that remedial action is complete is required in the deed.
- e. If response action for which the federal government is responsible is not complete, restrictions, the response guarantee, the schedule for investigation and completion of all necessary response actions, and budget assurances must be included in the deed.
- f. A clause allowing the U.S. government access to the property must be included in the deed.
- g. A notice of information about hazardous substances on the property must be included in the deed.
- h. Uncontaminated parcels of land must be identified and concurred with by the EPA administrator before termination of operations.
- i. A Notice of Intent with contamination information and protection needs is required before the property is relinquished to the U.S. Department of Interior.
- Transfer to the U.S. Department of Interior must indicate continuation of DOE responsibility.
- k. Report to the General Services Administration on contamination information and allowable land use for excess real property.

b. Notification to states of leases involving contamination. Concurrence of U.S. EPA is requested on leases of National Priorities List (NPL) (54 FR 48184) sites.